

## CLAIMS

1. A touch sensor (20), comprising:
  - a display device 10 having a substrate (14, 15) on  
5 which substrate at least one display electrode (11) is  
disposed for the display of a shape on the display device  
(10);
  - an interface (21) coupled to the at least one  
display electrode (11) for receiving display data to the  
10 display device (10);
  - a measuring circuit (25, 27) coupled to the at least  
one display electrode (11);
  - switching means (22) for connecting the interface  
(21) to the at least one display electrode (11) when the  
15 switching means is in a first state of operation and  
connecting the measuring circuit (25, 27) to the at least  
one display electrode when the switching means is in a  
second state of operation.
- 20 2. A touch sensor (20) according to claim 1, wherein  
the measuring circuit (25, 27) is a capacitance measuring  
circuit.
3. A touch sensor (20) according to claim 1, wherein  
25 the measuring circuit (25, 27) is a resistance measuring  
circuit.
4. A touch sensor (20) according to any preceding  
claim, wherein the measuring circuit (25, 27) comprises a  
30 signal generator (25) coupled to the at least one display  
electrode (11) for providing a predetermined test signal  
to the display electrode, and a signal evaluating circuit  
(27) coupled to the at least one display electrode for  
receiving the test signal from the signal generator.
- 35 5. A touch sensor (20) according to claim 4, wherein  
the signal evaluation circuitry (27) is adapted to detect

a deviation in the test signal when the switching means (22) is in the second state of operation.

6. A touch sensor (20) according to any of claims 4 or 5, wherein the signal generator (25) is adapted to apply the test signal to the segments (11) on a front substrate (14) of the display device (10).

7. A touch sensor (20) according to any of claims 4 or 5, wherein the signal generator (25) is adapted to apply the test signal to the segments (11) on a back substrate (14) of the display device (10).

8. A touch sensor (20) according to any preceding claim, wherein the segments (11) on the substrate (14, 15) which are not connected to the signal generator (25) are left in a high-ohmic state.

9. A method for detecting a touch on a display device (10), said display device having a substrate (14, 15) on which substrate at least one display electrode (11) is disposed for the display of a shape on the display device (10), wherein said display electrode (11) is coupled to an interface (21) for receiving display data to the display device, comprising the steps of:  
    disconnecting the at least one display electrode (11) from the interface (21);  
    connecting said display electrode (11) to a measuring circuit (25, 27); and  
    detecting a change in an electrical property of the display electrode (11) due to an electrical coupling towards an object (17) touching the display device (10) in the vicinity of the display electrode.

10. A method according to claim 9 comprising the steps of:

applying a predetermined test signal to the display electrode (11) and detecting a deviation in the test signal due to an electrical coupling towards an object (17) touching the display device 10 in the vicinity of the display electrode.

11. A method according to claim 9 or 10, wherein the electrical coupling is a capacitive coupling.

10 12. A method according to claim 9 or 10, wherein the electrical coupling is a galvanic coupling.